

READING PIPE

GENUINE Wrought Iron

Knurled for Instant and Positive Identification

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Look for the Reading' Spiral Knurl Mark

LIBRARY



Every Foot of Reading Genuine Wrought Iron Pipe is positively and permanently identified by the Reading Spiral Knurled Mark. The name READING and the year of manufacture are also rolled in the metal on every length. Each Reading Nipple bears the Reading Knurled Mark for your positive identification.

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READING IRON COMPANY
READING, PA.

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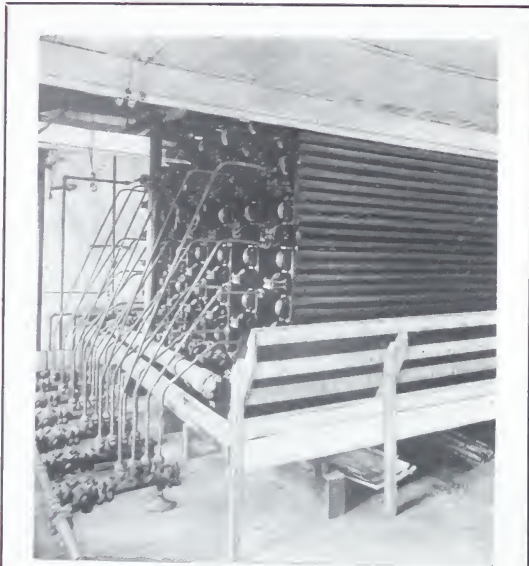


TIME

TIME is the greatest universal power, Time proves all things. Men guided by various interests, may have their theories; laboratories may have their accelerated tests; but Time gives the final, the correct answer. Time is the Friend of Reading Genuine Wrought Iron Pipe. Time quickly eats through steel, but stays its hand before Reading Genuine Wrought Iron. There is a scientific reason for this, and it is interesting reading. (See page 14). Time has seen many changes in the size of the Reading Iron Company since 1848 but no changes in the essential high character of its product. Reading Genuine Wrought Iron Pipe of today is even better than of yore. Today seventeen plants, thousands of acres of coal fields and iron ore mines are owned and operated by the Reading Iron Company—a great system of industry. Seventy-nine years of Time have rolled by since the first Reading Pipe was welded, but many of these early Reading installations are still in use. The Time Limit of Life of Reading Genuine Wrought Iron Pipe has yet to be determined. Sufficient Time has not yet passed. This much has been recorded—Reading Genuine Wrought Iron Pipe absolutely retards Corrosion—it lasts longer than any other pipe.

"COLD FACTS" from

READING GENUINE WROUGHT
Iron Pipe may well be called the
"Distinguished Service Metal"



Coil Installation of Reading Genuine Wrought Iron Pipe, purchased in 1893 by the Hygienic Ice Company, New Haven, Conn.



WAY back in 1892—when bicycles and buggies were the only joy-riding devices and Harrison was President, the Hygienic Ice Company of New Haven, Conn., had six atmospheric condensers installed.

Actual operation of the plant began just after Grover Cleveland was inaugurated President in 1893. These condensers operated continuously until 1921—without a break or a leak.

Then certain changes in the plant became necessary and the condensers were dismantled.

After 28 years of continuous service in an Ice Plant—the hardest kind of service for pipe—you'd think the pipe had outlived its usefulness.

But such was not the case.

The Reading Genuine Wrought Iron Pipe was found to be in such perfect condition that it was stored away for future use.

So in 1923, when an addition to the plant was required, and new condensers needed, the old pipes were hauled out and "new" condensers made. Eight complete condensers were thus made. Three years later, twelve new ones, made from Reading Genuine Wrought Iron Pipe of 1926 manufacture, were added.

Then the whole battery of 20 condensers were subjected to a 300 lb. hydrostatic test. The old 1892 pipes stood up just as well as the 1926 Pipes!

Martin Vander Veer, Plant Engineer of the Hygienic Ice Company, reports that he recently inspected these 20

Another excellent example of long life of Reading Genuine Wrought Iron Pipe in refrigeration service is the installation at the brewery of Anheuser-Busch, Inc., St. Louis, Mo. Steel pipe lasted 2½ years only—the life of Reading Genuine Wrought Iron Pipe was 10 years, when survey was made a few months ago. Write for copy of this interesting survey.

the Hygienic Ice Co.

condensers and "found it impossible to distinguish the old from the new."

In 1893, two 25-ton ice tanks were also installed in this plant, each containing 440-330 lb. cans. The coils in these tanks were made of Reading Genuine Wrought Iron Pipe, and have been in continuous operation since that time—only one length has been removed on account of a small pin hole leak.

Coils of Reading Genuine Wrought Iron Pipe were also used since 1893 in the cold storage plant formerly operated in conjunction with the Ice Plant. They were removed and are now giving excellent service in a new Ice Storage room, recently erected.

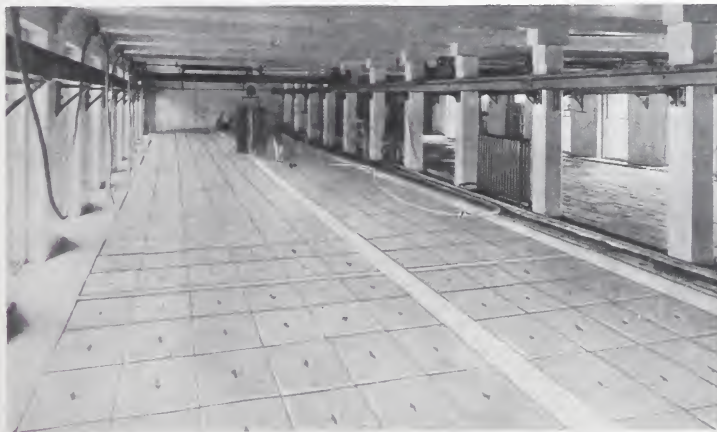
Cold facts such as these above, demonstrated by the experience of the Hygienic Ice Company, cannot be ignored.

Brine, ammonia, chemical combinations incident to ice-making and striking variations in temperature presented severe conditions but Reading Genuine Wrought Iron with its fibrous structure and siliceous slag content proved itself the fearless enemy of corrosion and vibration.

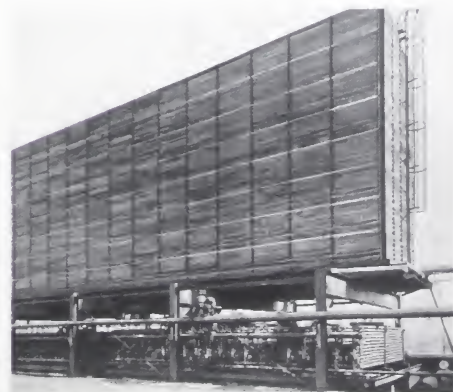
In Ice plants as elsewhere Reading Genuine Wrought Iron Pipe distinguishes itself. When you specify "Reading Genuine Wrought Iron Pipe" you are issuing insurance against replacement.



Main Ice Storage Room, Hygienic Ice Company, 2" extra strong Reading Genuine Wrought Iron Pipe in service since 1893.

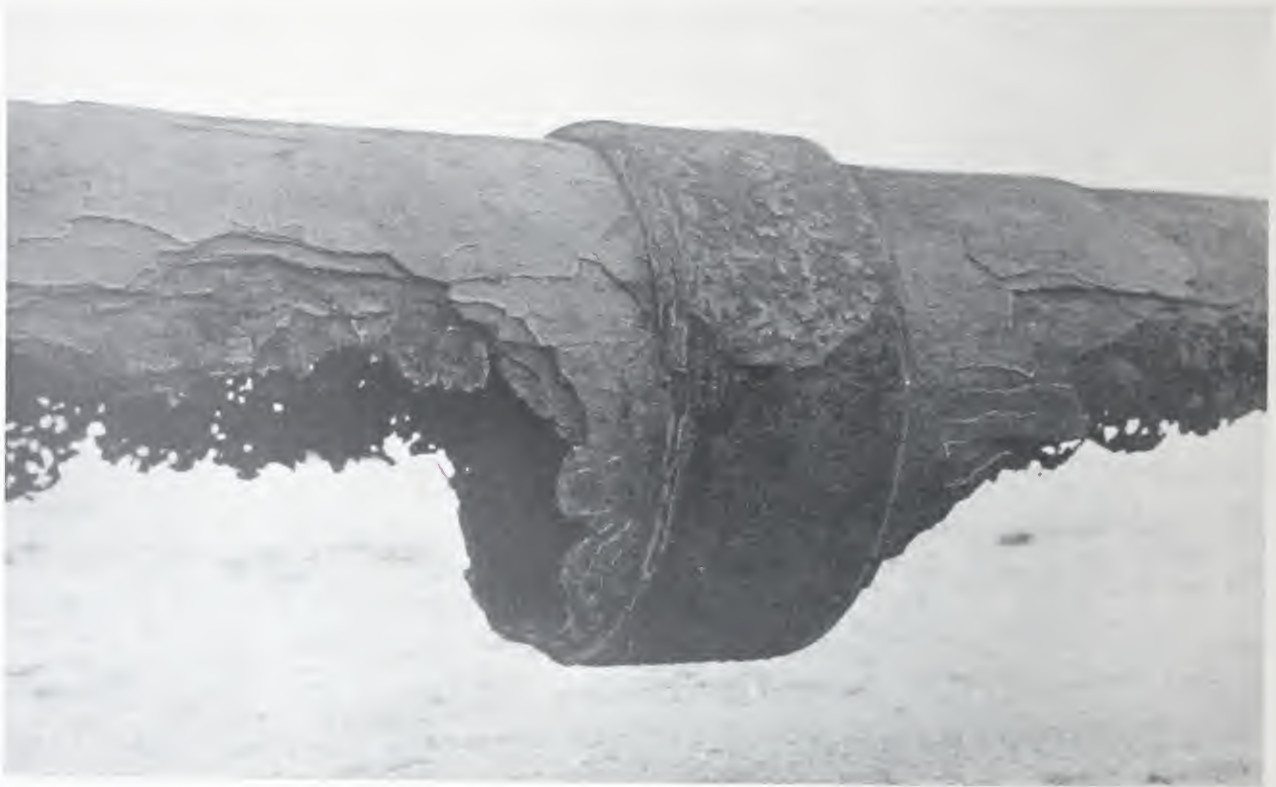


A Tank Room at the Hygienic Ice Company. Coils still perfect after 34 years of submergence in brine.



Condenser at Plant of Hygienic Ice Company, showing coils of Reading Genuine Wrought Iron Pipe in constant service since 1893.

STEEL PIPE HELD TOGETHER BY
*Wrought Iron Coupling, after
10 Years at Spring Lake, N. J.*



OLD OCEAN SHOWS THE DIFFERENCE

THIS photograph demonstrates the difference between Genuine Wrought Iron and steel more conclusively than any laboratory test ever made.

This pipe line was at Spring Lake, N. J., for a period of ten years.

Note that the coupling of Genuine Wrought Iron is still in an excellent state of preservation, while the steel pipe is reduced to a shell.

The picture shows which metal corroded through and which stood the test of Time.

Climatic conditions on the North Jersey coast are extremely severe, but neither Wind,

nor Sea, nor Ice, nor Sand, nor Time has seriously affected the impervious Genuine Wrought Iron.

Reading Genuine Wrought Iron Pipe contains a siliceous slag content which resists corrosion—forms a barrier against rust. This slag encases the pure iron and the processes of manufacture (see “Reading” Bulletin No. 1) give Genuine Wrought Iron its fibrous, rust-resisting structure.

Because steel is homogeneous in structure and does not contain slag, corrosion will never find in steel pipe a barrier against destructive conditions.

*“PENNY WISE — POUND FOOLISH”
is an old Quotation to which Pipe
Buying gives a New Meaning*



A HOME IN FLORIDA—A Leaky Pipe

THE plumber who had the contract for installing the plumbing in a fashionable residence saved a few cents a foot, by installing steel pipe instead of Genuine Wrought Iron Pipe. Three years later thousands of dollars worth of beautiful furniture was destroyed.

Imagine the dismay of the family that occupied this wonderful home, so tastefully furnished, when they returned to their winter quarters in Florida!

Paper torn off, Victrola ruined, Piano damaged almost beyond repair! Even the door frames warped and pulled apart by leaking water. All this from a small leak in a steel pipe through which 5,000 gallons of water, as

**NOT
READING**

recorded by the meter, had dripped ruination — inundating the whole floor.

Reading Genuine Wrought Iron Pipe—because of its slag content, resists corrosion. 40, 50, 60 or even 90 years is not an unusual record of resistance achieved by Genuine Wrought Iron.

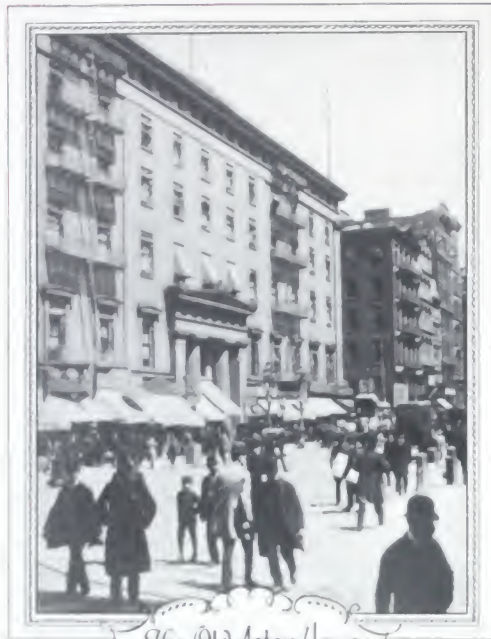
The composition and physical structure of Reading Genuine Wrought Iron Pipe is your Protection. Shock resisting fibrous Wrought Iron with its slag content—known barrier to the progress of rust—is the longest living material ever welded into pipe.

It pays to specify Reading Genuine Wrought Iron Pipe.

New York City's Famous

NOW DISMANTLED, THEY SHOW
that Genuine Wrought Iron
Pipe Lasts Longer than the
Buildings in which it is installed

The Astor House



The Old Astor House



Hotel NETHERLAND

THE Astor House! What memories surrounded that old Hostelry, built when New York was young. Ninety years ago, it was the acme of magnificence. But a new age dawned and progress outmoded the Historic Hotel so that It had to be torn down.

When the Astor House was built in 1836, there were grate fires in all rooms. The Lobby was heated by hot air, as were the offices on the main floor.

In 1873, keeping in step with progress, the Astor House had a steam heating system installed—using Wrought Iron Pipe throughout.

For 53 years thereafter the steam heating system performed its functions to the utmost satisfaction of both Management and guests.

Today the old Astor House is torn down. Progress again takes its toll. But the Wrought Iron Pipe taken from that building, after 53 years of service was found, upon analysis, to be of exactly the same composition as the Reading Genuine Wrought Iron Pipe being made today.

When the Astor House heating equipment was installed there was no choice—steel pipe did not exist—so Genuine Wrought Iron Pipe was used.

Steel came—and went. Useful as this modern fabricated metal is, steel has never equalled Genuine Wrought Iron for pipe and tubing. Time was needed to prove that and Time has proven it. Every survey of building conditions proves that Genuine Wrought Iron outlasts steel, two, three and four times.

Three or four years is often enough to demonstrate the weakness of steel pipe while Genuine Wrought Iron with its siliceous slag content—forming an impenetrable barrier against corrosion—lasts for half a century.

The Astor House is not the only New York Hotel in which Wrought Iron Pipe has given wonderful service—it isn't an isolated case by any means.

Old Buildings

And the Netherland

Unusual lasting qualities demonstrated by actual performance, are usual with Reading Genuine Wrought Iron.

Samples of pipe taken from the gas, water and steam lines of the Hotel Netherland, 5th Avenue and 59th Street, show it to be so little worn that it can be re-used in another installation.

The Netherland was completed in 1893 and after 33 years of useful existence, is being torn down—but the Wrought Iron Pipe used is as good as new—and has outlasted the gay days when fine families gathered there at the entrance to the exclusive 5th Avenue residential district. Thirty-three great Easter Parades have passed the Netherland—Thirty-three years of 5th Avenue fashions on Easter Morning. Now the hotel itself passes by, but its Genuine Wrought Iron Pipe remains as useful today as ever.

And the Famous Savoy

The Savoy Hotel, erected in the 80's, a Historic landmark of an era of scintillating social gatherings, located at 5th Avenue and 59th Street, like the Netherland, is another old Hotel now being demolished to make room for a great \$10,000,000 building enterprise. The Savoy brings to light wrought iron piping of at least 40 years continuous service that is still in good condition.

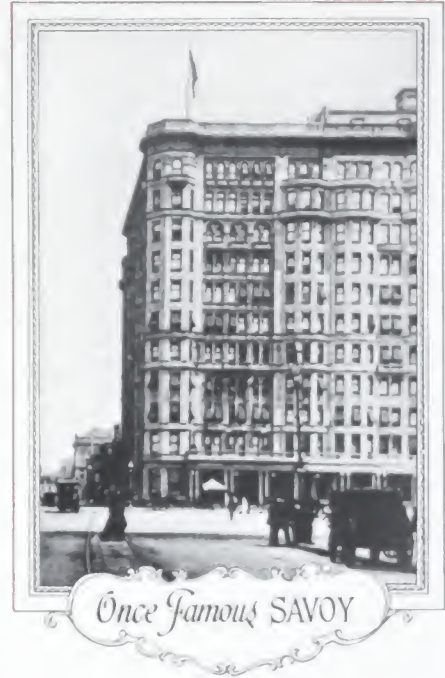
The Old Mills Building

Another example is the old Mills Building on Broad Street which is being replaced by a 36 story office building.

Samples of Wrought Iron pipe taken from various lines after 45 years of service were found to be in very good condition.

With such a preponderance of demonstrated proof of the long life of Genuine Wrought Iron Pipe, is it any wonder that the leading Architects and Builders of New York specify Reading Genuine Wrought Iron Pipe for their Newest Buildings?

NEW YORK'S OLDEST BUILDINGS AND
New York's newest skyscrapers both
have Reading Genuine Wrought
Iron of the Same High Quality



BEFORE THE CIVIL WAR, THE LONGVIEW Hospital, Cincinnati, Ohio, was caring for the sick. When originally built in 1860, Cast Iron Pipe was used throughout



ACTIVE SERVICE FOR 44 YEARS

IN 1904, 44 years ago, Reading Genuine Wrought Iron Pipe was installed. The Hospital then forgot all about pipe until a year ago when some changes were made in the pipe line.

At that time all the Reading Pipe was found to be in such good condition that it was USED AGAIN. Not one length of Reading Pipe was found that had suffered its usefulness.

Many changes have come about in Medical Clinics since 1904. Science has accomplished miracles in healing. Operations are performed which would have been impossible a decade ago, let alone 44 years back.

Yet in all that time under varying conditions, Reading Pipe has stood up in Longview Hospital.

Until 1934, vacuum wells supplied the water. Now City water is used. For 30 years the direct system of steam heating supplied warmth to patients.

AT THE LONGVIEW HOSPITAL



A 10 1/2" vacuum at Longview Hospital showing the "Reading" inscription.



A 10 1/2" vacuum at Longview Hospital supplied with "Reading" in 1904.

Now a Vacuum system keeps the temperature just right. A refrigerating system was installed in 1934, taking the place of the old ice box.

Everything changed — the World moved forward tremendously. But good old Reading Genuine Wrought Iron Pipe after 44 years of active service remained just as it was installed. No failure of any kind occurred during that entire period!

Yet even that good pipe of an early manufacturer was not as uniform in composition as Reading Genuine Wrought Iron Pipe being manufactured today.

Chemical analysis proved that this old pipe did not have the slag so uniformly distributed as Reading Pipe manufactured today. Seventy-eight years of experience, research and testing practices have perfected "Reading" methods and developed "Reading" Quality to its highest point.

THE SUBSTANTIAL CONSTRUCTION OF this Stately Old Residence went all the way through. Naturally, Genuine Wrought Iron Pipe was found within

Built about 1872, this old Reading home combined substantial construction, architectural beauty and those comfortable features which we now call "old fashioned" but are of more enduring worth than many newer ideas.



In 1926, when the March of Progress necessitated the demolition of this old residence — fifty-four years after its installation — the Genuine Wrought Iron Pipe was found to be in excellent condition.

A VOICE FROM THE SEVENTIES

FOR many years, this old residence was the gathering place of Reading's elite.

Old fashioned in its honest construction was the pipe installed in it. Decorators were never called to cover up damage done by leaking pipes. In fact, piping was never thought of, so perfectly did it give service.

Resistance to corrosion, characteristic of Reading Genuine Wrought Iron Pipe, is just as important in private homes as in large industrial establishments.

Reading Genuine Wrought Iron Pipe contains minute filaments of slag, surrounding the pure iron.

Steel does not contain slag,

and therefore offers no resistance to the deterioration caused by corrosion.

While the initial cost may be slightly higher, actual experience has demonstrated time after time the economy of installing Reading Genuine Wrought Iron Pipe — with a Proven record of Reliability.

TWO WAYS *to be sure of*

- 1 SPECIFY "READING" GENUINE WROUGHT IRON PIPE.
- 2 INSIST ON A MICROSCOPIC AND CHEMICAL TEST.

IN testing "Wrought Iron" pipe as sold to the trade today we find that a few manufacturers are furnishing a material which is *not genuine wrought iron*.

This is important and we wish to call the attention of every buyer of pipe to this so-called "wrought iron" misleadingly sold as genuine wrought iron, but containing much foreign scrap.

What is Genuine Wrought Iron?

All standard specifications for Wrought Iron Pipe such as those issued by the American Society for Testing Materials, the United States Government, the American Railway Association, the American Petroleum Institute, various municipalities, large Railways and leading engineering societies, carry a clause stating that pipe shall be made from muck bars from *all* puddled pig iron, free from any admixture of iron scrap, or steel, except that the manufacturer's own iron skelp crop ends, and finished iron pipe ends may be used.

As made by reputable manufacturers Wrought Iron is a purified iron produced in a puddling furnace from all pig iron by agi-

tation, the highly refined resultant metal being aggregated from pasty particles without subsequent fusion and containing throughout a siliceous slag minutely distributed. Any iron not made from *all* pig puddled iron is not genuine wrought iron.

Several so-styled "wrought irons" on the market are made by using old junk-yard scrap which is busheled or fagoted, heated to a welding heat and rolled into skelp for making pipe. Pipe made from junk-yard scrap today consists mostly of steel as shown in photomicrograph No. 2.

Other so-called "wrought irons" are made of mixtures of busheled steel and iron rolled into bars which are piled with bars of a little better grade of material heated to a welding temperature and rolled into skelp for pipe, as photomicrograph No. 3.

What Chemical Tests Show

To detect this scrap product a number of the standard specifications have added a clause calling for a chemical analysis and microscopic examination. The manganese in this class of material will be found to run

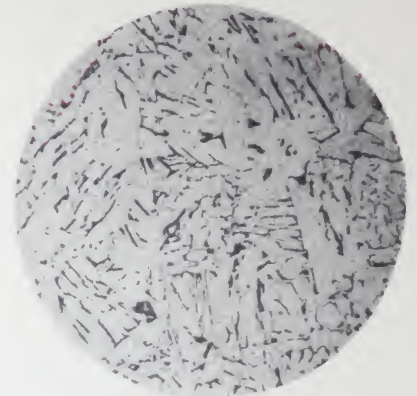


FIG. No. 1
Steel Pipe — note the absence of long filaments of protective slag.

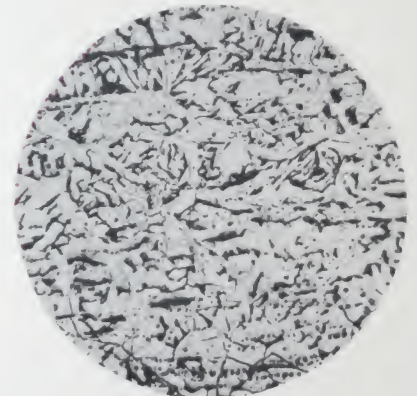


FIG. No. 2
A self-styled "wrought iron" pipe. Steel scrap used. Note the close resemblance to steel.



FIG. No. 3
Another manufacturer's product, called "wrought iron" but far different from the genuine.

GENUINE Wrought Iron Pipe

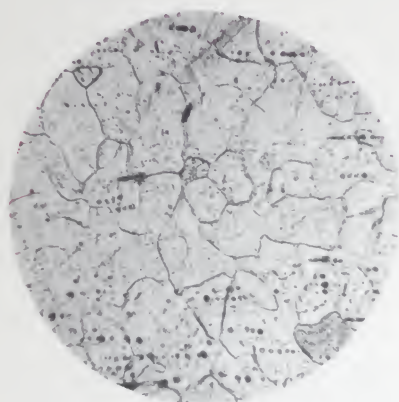


FIG. No. 4
A so-called "wrought iron" pipe — inferior because of its low slag content.



FIG. No. 5
Product of another manufacturer. Scrap has been generously used.



FIG. No. 6
Reading Genuine Wrought Iron Pipe. The difference is easily seen. Long filaments of slag form a series of long barriers against corrosion.

over .050%, usually a sure indication of the addition of steel scrap. Compare Photo No. 2 self-styled "Wrought Iron" pipe with Photo No. 1—Steel pipe—and note the very close resemblance.

As shown by Photos No. 4, another so-called "Wrought Iron" pipe, and No. 5, the mis-named "Wrought Iron" of another manufacturer, this material is not made from puddled pig iron but contains only traces of silicon and is very low in slag. Genuine Wrought Iron contains sufficient non-corroding siliceous slag to impart to its structure the many virtues it is known to possess, while the slag found in samples No. 4 and No. 5 is an iron oxide which does not possess any value and is really a detriment and accelerator of corrosion.

Reading Genuine Wrought Iron

Photomicrograph No. 6, Reading Genuine Wrought Iron, is a metal made up of innumerable fibres surrounded by slag filaments and has within itself the power of distribution of strains and stresses. The superior corrosion-resisting qualities of Genuine Wrought Iron are shown clearly in the many splendid examples of wrought iron bridges, fences, pipes, and parts of old locomotives and cars that have withstood the elements for over half a century and are still in excellent condition.

There are several hundred thousand slag filaments in one inch square cross section of wrought iron and being non-corrodible they will obstruct the progress of corrosive attack.

Steel does not contain this slag and therefore a corrosion pit once started eats its way through in a comparatively short time. It has been found by service tests made by the Gas Company of London, England, that pipe from scrap deteriorates at a more rapid rate than 100% steel pipe.

Steel does not contain this non-corrodible slag. In cooling, segregation takes place in steel, the impurities localizing toward the top-centre of the ingot, producing skelp very irregular in composition and structure when rolled.

Only genuine puddled Wrought Iron can contain this rust-resisting siliceous slag content in properly distributed amounts.

As seen by the accompanying photographs, the slag fibres in Reading Genuine Wrought Iron form a series of long barriers to the progress of corrosion, whereas steel and junk scrap iron with their irregularities offer an almost clear and direct path to the disintegrating elements.

To save pipe failures, costly repair work and replacements, insist either on authentic microscopic and chemical tests or on "Reading" Genuine Wrought Iron Pipe—the longest lasting and most economical pipe you can buy.

SUPERIORITY OF READING GENUINE WROUGHT IRON
*Pipe Begins with the First Step in Manufacture and
 Ends with Length of Service Demonstrated by Time*

From PUDDLING FURNACE

READING Genuine Wrought Iron Pipe lasts longer, gives better service, because of qualities inherent only to Genuine Wrought Iron. Time has demonstrated that only puddled wrought iron possesses the resistance to corrosion and uniformity of composition that make Dependable Service certain.

Here are the differences in manufacturing methods between Genuine Wrought Iron and steel — each one an explanation of the greater life and more faithful performance of Reading Genuine Wrought Iron Pipe.

1. Reading Genuine Wrought Iron is made in a Puddling Furnace. Puddling is a process for the production of Wrought Iron from pig iron by the action of flame assisted by agitation, whereby most of the foreign elements are removed by oxidation. Vigorous agitation of the mass is employed throughout the whole process.

(Unlike Wrought Iron, steel is produced in large quantities, at the rate of one ton a minute and therefore the ingredients cannot be carefully controlled

and regulated as they are in Wrought Iron.)

2. Genuine Wrought Iron contains a quantity of slag, each grain of pure iron being surrounded by it. When squeezed and rolled, the grains are elongated into fibres, giving wrought iron a rope-like structure. The slag content of Genuine Wrought Iron renders it practically incorrodible — it is a secret of Genuine Wrought Iron's remarkable resistance to corrosion. The rope like structure of Wrought Iron gives it greater resiliency and enables it to resist shocks and vibration.

(Steel has no fibres and does not contain slag. It therefore offers no resistance to the ravages of corrosion.)

3. Wrought iron solidifies in the furnace and is cooled gradu-



Roe Puddling Department for the manufacture of Reading Genuine Wrought Iron Skelp from which pipe is made.

ally, being worked and agitated constantly, insuring uniformity of structure and composition.

(Steel on the other hand is cast into ingots and allowed to cool undisturbed. The hot metal comes into contact with the cold sides of the molds and cools, while the center retains its molten condition. Impurities segregate in the portion that remains liquid the longest. This leaves the solid steel irregular chemically — a reason for its irregularity in service.

As one metallurgist has stated "It is generally admitted that segregated steel will rust much faster than metal in which the impurities are evenly distributed. The segregation of impurities arises during the solidification of molten masses and is always present to some extent in



Keystone Furnace where Pig Iron used in the manufacture of Reading Genuine Wrought Iron Pipe is produced.



to INSTALLATION...

Bessemer and Open Hearth steel. It is practically unknown in Wrought Iron.")

4. Genuine Wrought Iron skelp (long flat iron strips from which pipe is welded) is made from bars of puddled iron, without the addition of any other material except our own crop ends of pipe (permitted under all standard specifications for Genuine Wrought Iron Pipe.) These piles are heated at a uniform temperature so as to weld all together in the rolling operation.

(Cheap grades of so-called "wrought iron" are made by adding to the piles of puddle bars a large proportion of miscellaneous steel and junk yard scrap. Pipe made from such material is not uniform either in composition or endurance.)

5. Skelp is welded into pipe either by the butt weld or lap-



Tube Works Department where Genuine Wrought Iron Skelp, made by "Reading" from "Reading" raw materials, is welded into tubular goods in diameters from 1/8" to 20"

weld processes. In the former the skelp is drawn into a bell shaped tube, and welded edge to edge. In the lap weld process the edges are scarfed, the overlapping pieces are welded with a uniform thickness throughout. The double welding process improves the quality of Reading Pipe and the efficiency of its welds. Conclusive tests have demonstrated that the weld of Reading Genuine Wrought Iron is the last part to weaken.

Perfectly aligned concave rollers and sizing rolls insure the sizing and straightness of Reading Genuine Wrought Iron Pipe. After passing rigid inspection and tests, Reading Pipe is then ready for Shipment.

After all operations are com-

pleted Reading Pipe is carefully loaded on freight cars in such a manner that it reaches its destination in perfect shape for the service it is required to give.

The individual care and attention given Reading Genuine Wrought Iron Pipe, extending from pig iron to shipping insure the uniformity and perfection of quality that account for the long lasting qualities it demonstrates in actual use.

To be sure, specify "Reading Genuine Wrought Iron Pipe" by its full name—or just write "Reading Pipe" because Reading Iron Company manufactures Genuine Wrought Iron Pipe only—positively and permanently identified by its distinctive Knurled Mark throughout the entire length—and on every nipple—and also by the name "Reading" and the year of manufacture which is rolled in every length.



Skelp Mill for the production of Reading Genuine Wrought Iron Pipe.



Skelp Mill for the production of Reading Genuine Wrought Iron Pipe.



READING Genuine Wrought Iron Pipe

MAY be obtained through over 300 distributors in principal cities. Architects, Engineers, Builders and Plumbing and Heating Contractors are invited to write for the names of the Reading Distributors in their respective territories.

Reading Distributors are available at all times for technical counsel and service.

READING IRON COMPANY

Founded on Quality in 1848

*World's Largest Producers of
Genuine Wrought Iron Pipe*

READING, PA.

BOSTON, PHILADELPHIA, SEATTLE, TULSA, PITTSBURGH, CHICAGO,
BUFFALO, DALLAS, NEW YORK, BALTIMORE, CINCINNATI,
LOS ANGELES, HOUSTON, ST. LOUIS, CLEVELAND, DETROIT,
ATLANTA, KANSAS CITY, SHREVEPORT.
